

**THE IMPACT OF TOUCH-TONE DATA ENTRY
ON REPORTS OF HIV/STD RISK BEHAVIORS
IN TELEPHONE INTERVIEWS**

Stephen J. Blumberg, Ph.D.

Centers for Disease Control and Prevention
National Center for Health Statistics

Marcie L. Cynamon, M.A.

Centers for Disease Control and Prevention
National Center for Health Statistics

Larry Osborn, M.P.H.

Abt Associates, Inc.

Lorayn Olson, Ph.D.

Abt Associates, Inc.

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Contact Information

Inquiries may be addressed to Stephen J. Blumberg, PhD, at the Centers for Disease Control and Prevention, National Center for Health Statistics, 6525 Belcrest Rd, Room 850, Hyattsville, MD 20782 (e-mail: sblumberg@cdc.gov). Phone: 301-458-4107. Fax: 301-458-4035.

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ABSTRACT

Respondents' concerns about privacy can decrease reporting of HIV/STD risk behaviors in general population telephone surveys. The purpose of this paper is to describe the results of an experimental study evaluating whether one method for increasing privacy—touch-tone data entry (TTDE)—is effective in increasing estimates of sexual behaviors from a population-based survey. A random-digit-dial telephone survey of adults in New Jersey (n = 405) was conducted, with half the respondents using TTDE for answering sexual behavior questions. TTDE led to increased reports of same-sex sexual behavior, certain HIV/STD risk factors, and concern about one's risk for HIV/STD transmission. TTDE also narrowed the difference between men's and women's reports of the number of different sexual partners over the past 10 years. The feasibility and limitations of TTDE are discussed, as well as possible alternative interpretations that consider the impact of TTDE on the dynamics of the interaction between the respondent and the interviewer.

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Policy development for human immunodeficiency virus (HIV) and sexually transmitted disease (STD) prevention calls for high-quality data to develop, target, implement, and evaluate effective prevention programs. While extensive information on HIV/STD risk and preventive behaviors has been collected for infected and high-risk populations in many jurisdictions, the inclusion of explicit questions on risk and preventive behaviors in general population surveys has traditionally been limited by concerns about respondents' willingness to answer sensitive questions honestly. This manuscript includes a report on an investigation into whether telephone data entry will lead to higher population-based prevalence estimates for HIV/STD risk behaviors. Our assumption is that an increase in affirmative responses to sensitive questions on such behaviors suggests greater honesty or enhanced self-disclosure.

Respondents may be more willing to answer sensitive questions honestly when they believe that their answers will remain anonymous or confidential. It has been hypothesized, for example, that "the greater anonymity associated with telephone interviews compared with personal contact [in face-to-face interviews] could yield more frequent reports of risky, socially disapproved behaviors" (Nebot et al., 1994, p. 413, citing results from McQueen, 1989). Indeed, studies have shown that less traditional or more embarrassing sexual behavior information (such as the number of sexual partners in the past year) is more likely to be admitted over the telephone than in face-to-face interviews (Czaja, 1987; see also Nebot et al., 1994, for similar results with adolescents). Yet, questions about less sensitive and more traditional sexual behaviors (such as average frequency of sexual intercourse per week) were answered similarly in both modes.

Because increased perceptions of anonymity and confidentiality may result in more

trustworthy answers, survey researchers have pursued new methods to increase these perceptions by increasing respondents' privacy. This research has led to the development of computer assisted self-interviewing (CASI) and audio-CASI (where the survey questions are presented via headphones). Both techniques protect respondents from having their individual and identifiable responses overheard or read by persons not participating in the interview. The increased privacy from these techniques has been shown to increase reporting of sexual activity, drug use, and drug use during sexual activity (Tourangeau & Smith, 1998; Turner, Ku, et al., 1998).

The most straightforward equivalent to audio-CASI for a telephone survey is having a computerized voice read the questions and answer options and having the respondent enter the answers into the phone. When respondents use the touch-tone keys, this technique is commonly known as telephone audio-CASI (T-ACASI). Some researchers also refer to this technique as interactive voice response (IVR), although this term is best used when the computer is programmed to comprehend verbal answers. Both techniques increase reporting of sensitive behaviors (Gribble, et al., 2000; Turner, Forsyth, et al., 1998). However, their impersonal nature can lead to increased interview break-offs and low response rates (Gribble, et al., 2000), perhaps because it squanders any rapport that the interviewer may develop with the respondent.

A more "personal" hybrid of T-ACASI has been recently tested in a study of the sexual behaviors of District of Columbia adolescents aged 12-15 (Boekeloo, Schamus, Simmens, & Cheng, 1998). In this study, interviewers read sensitive questions over the telephone and adolescents responded by pressing or dialing the appropriate telephone digit. To retrieve adolescents' responses, Digit Grabber® dialed digit meters (Model TPM-32, Metro Tel Corporation, Jericho, NY) were used. When the adolescents pressed telephone digits, the numbers matching the tones were displayed to the interviewers on an alphanumeric screen. The

interviewers then transferred the displayed digit to the answer form. This response mode ensured the privacy of adolescents' responses, in the event that parents or siblings were listening to the interview on a telephone extension.

The prevalence estimates for sexual behaviors among these 14-15-year-olds were considered reliable because they were similar to estimates from the 1995 Youth Risk Behavior Survey (YRBS) of Washington, D.C. ninth-grade students. The YRBS is a paper-and-pencil questionnaire self-administered in schools (Kann, et al., 2000). Thus, it was concluded that telephone response and Digit Grabber® dialed digit meters provide a reliable way of assessing sexual behavior in adolescents.

Touch-Tone Data Entry and Adult Respondents

Will touch-tone data entry (TTDE) and Digit Grabber® dialed digit meters influence population-based survey estimates of adult sexual behavior? To answer this question, dialed digit meters were used in a telephone-based field test of HIV/STD risk and preventive behavior questions using a random-digit-dial sample of the general population. This field test randomly selected and recruited 405 adults in New Jersey aged 18-49. Approximately half the respondents used their touch-tone telephones when answering the HIV/STD risk behavior questions; the remaining half did not use TTDE. We hypothesized that TTDE would lead to higher prevalence estimates for sexual behaviors.

Method

The field test was conducted as a module of the State and Local Area Integrated Telephone Survey (SLAITS), which shares the large random-digit-dial sampling frame of the National Immunization Survey (NIS) (Ezzati-Rice, Cynamon, Blumberg, & Madans, 2000). Both surveys are sponsored by the Centers for Disease Control and Prevention (CDC). For the

SLAITS HIV Testing and STD Risk Behaviors Module field test, the sample was restricted to telephone numbers randomly generated in New Jersey, but not used for NIS administration.

From February 7, 2000 through March 31, 2000, a total of 405 telephone interviews were completed with residents of New Jersey aged 18-49. Survey topics included health care utilization, health insurance coverage, demographic information, hepatitis C knowledge, HIV testing, and sexual history. The questionnaire was designed so that a series of less sensitive questions would precede the questions on HIV testing and sexual history. The sexual history questions were adapted from a standardized set of behavioral risk questions (Rietmeijer, Lansky, Anderson, & Fichtner, 2001); topics are listed in Table 2. In addition, for two risk questions, respondents were asked, "...if any of these statements are true for you. Do not tell me which statements are true for you, just if any of them are." The first set of statements was drawn from the Behavioral Risk Factor Surveillance System (BRFSS; BRFSS, 1999), with the addition of a statement concerning hemophiliacs. The second set of statements reflects additional behavioral risks that are included in the National Health Interview Survey (2000), with the addition of a statement concerning non-monogamy. The specific statements are included as footnotes to Table 2.

An advance letter was sent to presumed households where a mailing address could be identified—59.1% of the randomly generated telephone numbers. This letter alerted potential respondents to expect a telephone call and informed them that the survey would include questions about health care services, health insurance, health risk behaviors, and sexual activity. When households were contacted by telephone, similar information was provided and consent to participate was obtained.

Households were initially screened for adults within the eligible age range (18-49 years

old). If more than one adult within the specified age range lived in the sampled household, the adult who most recently observed his/her birthday was invited to participate. Selected respondents who chose not to participate were not replaced by others within the household.

All survey questions were answered by voice except for questions on sexual history. For this section, the 405 respondents were randomly assigned to one of two groups: those who would answer the sexual history questions by voice ($n = 190$), and those who would answer the sexual history questions using TTDE ($n = 215$). Two respondents who were initially assigned to use TTDE for the sexual history questions were later reassigned because their typed digits did not provide a tone strong enough for the dialed digit meters. In addition, if respondents who were initially assigned to use TTDE said that they preferred to answer the sexual history questions verbally, they were permitted to do so.

Before the questions on sexual history, and after being reminded of the confidentiality of their answers, respondents in the TTDE group were told, “Because you may consider these questions to be sensitive, and I want you to feel comfortable giving me honest answers, I would like you to answer these questions by using your telephone keypad. Instead of directly telling me what your answers are, I would like you to enter your answers into the telephone. The number you press or dial will then appear on my computer screen. Most of the questions are answered with a yes or a no. If your answer is yes, press or dial one. If your answer is no, press or dial two. If you don’t know an answer, just let me know. Also, please let me know if you want to skip any one question or want to skip this entire section.” Thus, respondents in the TTDE group were aware that this response mode did not increase anonymity or confidentiality, but would increase privacy (e.g., if someone else was listening to the interview). In contrast, respondents in the voice-response group were reminded of the confidentiality of their answers

and then were told, “You may consider these questions to be sensitive, and I hope you will feel comfortable giving me honest answers. However, please let me know if you want to skip any one question or want to skip this entire section.” In both groups, respondents were aware that the interviewer was available to clarify survey items or to proceed if the item was not answered.

Trained professional interviewers conducted the survey using computer-assisted telephone interviewing (CATI) technology. This data collection method employs computer software to guide the interviewers through the questionnaire, automatically routing them to appropriate questions based on answers to previous questions. Interviewers enter survey responses directly into the computer and the CATI program determines if the selected response is within an allowable range, checks it for consistency against other data collected during the interview, and saves the responses into a survey data file.

Digit Grabber® dialed digit meters decoded responses entered using touch-tone telephones. Interviewers then manually transferred the response to the CATI system and read aloud the next question presented by the system. When dialed digit meters are used with a CATI system, the technique can be referred to as touch-tone-entry-CATI, or TTE-CATI.

To produce population-based estimates, the data for each respondent were assigned a sampling weight. This weight reflected the probability of selecting a respondent’s telephone number, an adjustment for households with multiple telephone numbers, and adjustments that compensate for unit nonresponse. Finally, weights were adjusted using poststratification control totals. These control totals were based on two elements: 1) the number of persons between the ages of 18 and 49 in New Jersey by age group (18-30, 31-49), gender (male, female), and race/ethnicity (non-Hispanic white, non-Hispanic black, and all others) using Census projections (Campbell, 1996), and 2) the estimated percentage of persons between the ages of 18 and 49

from households with telephones and without telephones from the latest Current Population Survey data. This latter element helps adjust for the noncoverage of households without telephones (Brick, Waksberg, & Keeter, 1996). Statistical tests using weighted data were conducted using SUDAAN (Shah, Barnwell, & Bieler, 1997).

Results

Response rate, coverage bias, and random assignment bias. The overall response rate, calculated in accordance with the American Association for Public Opinion Research's (2000) *Standard Definitions* for Response Rate #3 and using the assumptions detailed by Ezzati-Rice, Frankel, et al. (2000), was 32.2%. Of the 5,139 telephone numbers dialed, 2,057 were not eligible because the number was non-residential or non-working, 470 were residential but not age-eligible, and 1,938 were of unknown eligibility. The interview cooperation rate, a measure of the number of respondents who completed interviews (405) among identified eligible respondents who were capable of completing an interview in English (629), was 64.4%. Thus, difficulties identifying and screening households among the sampled telephone numbers contributed more to the low overall response rate than did refusals from potential eligible respondents (Osborn, Blumberg, & Olson, 2000).

Still, a more detailed analysis of potential coverage bias was prudent. Independent-samples *t*-tests and a one-way analysis of variance with planned contrasts were used to compare the sampling weights within each poststratification category. Younger adults (t [192.8; unequal variance] = 2.06, $p = .040$), males (t [241; unequal variance] = 5.90, $p < .001$), and Hispanics/other races (F [1, 399] = 6.29, $p = .013$) were underrepresented in the sample.

However, these groups are typically underrepresented in random-digit-dial telephone surveys. To determine if the bias for this sample was larger than for the typical telephone survey

sample, selected characteristics of the respondents (see Table 1) were compared with characteristics of the respondents to the BRFSS in New Jersey. The BRFSS is a general population, random-digit-dial health survey of adults in all 50 states that includes questions on HIV testing and risk behaviors. The field test respondents were more likely than BRFSS respondents to be living in households with income at or above \$50,000 (65.1% vs. 53.4%, $z = 3.34, p < .001$), were less likely to be employed in the week preceding the interview (75.7% vs. 81.3%, $z = 1.98, p = .048$), and were more likely to report little or no chance of getting HIV (94.9% vs. 90.7%, $z = 2.64, p = .008$).

To evaluate whether the population estimated by the TTDE group differed from the population estimated by the voice-response group, logistic regression analyses were used to determine if assignment to either data collection mode could be significantly predicted by various demographic and health variables (see Table 1). Weighted data were used for these analyses because the research question is whether population-based estimates using TTDE differ from population-based estimates without TTDE. Adults with more than a high school education were more likely to be assigned to the TTDE group than to the voice-response group, $F(1, 403) = 3.99, p = .046$ (odds ratio [OR] = 1.65, 95% confidence interval [CI]: 1.01-2.70). Therefore, all analyses of the impact of TTDE on responses include the education variable as a covariate.

Preference for voice response. For the previous analyses of random assignment bias, consideration was given only to the group to which the respondent was initially assigned. Of those assigned to the TTDE group, 26 (12.2%) said that they preferred to answer verbally and were permitted to do so. Seven respondents believed that it would be faster to answer verbally and five stated that it would be easier to answer by voice. One of these respondents mentioned that voice was easier because the pushbuttons were on her handset; another indicated that he was

using a portable handset and the telephone base with the pushbuttons was in a different room. Two respondents declined to use TTDE because they believed (correctly) that it did not increase confidentiality. The remainder did not provide a reason. Because the primary research question was to determine the impact of using TTDE on population-based estimates from future surveys (where respondents would also presumably have a choice), later analyses include these respondents in their original group, even though they preferred to respond verbally.

Impact of TTDE on item nonresponse. During the interview, respondents had the option of refusing individual questions, and they could refuse to answer an entire section of questions. Still, the sexual history section of the interview had high item cooperation rates. Only 21 respondents (5.2%) exercised the option to skip all or a significant portion of the sexual history section; ten had been assigned to answer using TTDE. An additional 16 respondents (4.0%) refused to answer at least one question during the sexual history section; six were in the TTDE group. Thus, the response mode did not influence section nonresponse, $\chi^2(1) = .05, p = .83$, or item nonresponse, $\chi^2(1) = 1.00, p = .32$.

Impact of TTDE on responses. Logistic regression analyses were conducted to examine the impact of using TTDE. These analyses examined whether reports of sexual behaviors could be predicted by the response mode to which respondents were assigned. Because of complex skip patterns employed during this section of the questionnaire, few respondents received all questions. Questions were skipped when previous answers yielded the information sought (e.g., a sexually-active respondent with only one sexual partner in the past 10 years was not asked for the number of sexual partners in the past 12 months). However, to evaluate the effect of the response mode on population-based estimates of sexual behaviors, analyses were performed on the weighted data for all respondents with valid data, regardless of

whether the data were reported directly or derived from previous answers.

Table 2 presents the population-based estimates by response mode, as well as the results of the logistic regression analyses. The items are listed in the order that they appeared in the questionnaire. Detailed questions about sexual activity were not asked of persons who had no sexual activity in the past 12 months, or of persons with only one partner in the past year when that partner was a main partner and they had no other risk factors based on the two questions that presented 10 specific risk statements. As can be seen in Table 2, questions about some sexual behaviors were therefore asked of only a small group of respondents. Due to the sample size, interpretation of these results should be made cautiously.

Respondents answering with touch-tone telephones were significantly more likely ($p < .05$, two-tailed) to report being worried about contracting AIDS or STDs and having an HIV/STD transmission risk factor, and they were marginally more likely ($p < .10$, two-tailed) to report using a condom and having oral sex during last sex with their main partner (see Table 2). In addition, it is perhaps interesting to note that, of the 64 respondents asked about the gender of their sexual partners, the seven respondents who reported same-sex activity in the past 12 months were in the TTDE group. (The probability that all seven would be randomly assigned to this group is less than 1%.) Statistically significant differences between response modes were not found for reports of any other behaviors.

Impact of TTDE and gender on responses. In focus groups conducted prior to the present research (Blumberg & Cynamon, 2000), men were more likely than women to suggest that they would be able to distinguish between different touch-tone sounds and therefore would be less confident that TTDE would enhance privacy. To determine if the effect of TTDE was qualified by gender, all logistic regression analyses in Table 2 were also conducted using gender

as a main effect and in an interaction term with response mode.

The main effect of gender was significant for reports of multiple sexual partners in the past 10 years among sexually active respondents, $F(1, 338) = 9.43, p = .002$, but was qualified by a significant interaction effect, $F(1, 338) = 6.46, p = .01$. Women were more likely to report multiple sexual partners in the past 10 years using TTDE than using voice response, $F(1, 338) = 5.80, p = .02$ (OR = 2.16, 95% CI: 1.15–4.04). TTDE did not significantly affect men's responses, $F(1, 338) = 1.78, p = .18$.

The number of different sexual partners in the past 10 years was reported as a continuous integer variable, and therefore may also be examined as such. However, because of a positive skew, logarithmic transformation of the data for this variable was necessary prior to any statistical tests. As expected from previous research (Tourangeau & Smith, 1996), men reported more sexual partners in the past 10 years than did women, $F(1, 338) = 15.44, p < .001$. However, this difference was smaller (though not eliminated) when TTDE was used, $M(\text{men, TTDE}) = 4.56, M(\text{women, TTDE}) = 2.82, M(\text{men, voice}) = 5.98, M(\text{women, voice}) = 2.06, F(1, 338) = 3.85, p = .05$.

Gender did not qualify the response mode results for any other behaviors, $p > .10$.

Discussion

The need for privacy is essential before anyone should be expected to truthfully answer survey items on sensitive behaviors (Rasinski, Willis, Baldwin, Yeh, & Lee, 1999). This manuscript presented the results of a field test of a random-digit-dial survey that focused on one potential new telephone survey methodology that may increase perceptions of privacy: touch-tone data entry (TTDE) with Digit Grabber® dialed digit meters.

This field test demonstrated that TTDE had little effect, if any, on population-based

estimates of sex in the past 12 months, lifetime condom use, sex with someone who was not a main partner, or general risk factors for transmission of HIV (e.g., intravenous drug use, treatment for other STDs). However, TTDE did result in increased estimates of the proportion of women with multiple sexual partners in past 10 years, same-sex sexual behavior, highly sensitive risk factors (e.g., sex with non-monogamous partners, sex with gay men, trading sex for money or drugs), and concern that might suggest one has put oneself at risk for HIV/STD transmission.

The impact of TTDE, therefore, may be related to the sensitivity of the questions. We are hesitant, however, to conclude that this field test provides conclusive evidence about which specific survey questions are sensitive enough to require special data collection modes such as TTDE. Sensitivity is in the eye of the beholder, and these subjective perceptions can be dependent on several aspects of the respondent's situation that are independent of the specific question content. For example, the context of a survey question can influence the perception of a question's sensitivity; questions about number of sexual partners may seem quite sensitive when following questions about one's favorite color, but less sensitive (we imagine) when following questions about masturbation. Perceptions of sensitivity may also depend on norms that specify desirable attitudes or behaviors, norms that specify when questions invade one's privacy, and the potential threat from disclosure of the answer to third parties such as other government agencies, neighbors, or employers (Tourangeau, Rips, & Rasinski, 2000).

We have hypothesized that TTDE increases population-based estimates for some sensitive sexual behaviors by increasing respondents' privacy. Because respondents do not provide their answers aloud, the potential threat of disclosure to third parties (e.g., family members) would be reduced. As just noted, the reduction of this threat may reduce the perceived sensitivity of the questions, which in turn could reduce the need to censor or edit one's answers.

However, it is also possible that the use of TTDE heightened respondents' sense of the importance and legitimacy of the study and the need for accurate answers. Greater self-disclosure may also have been encouraged because the use of TTDE can be a sign of the interviewers' concern, empathy, or sensitivity toward the respondent. In addition, TTDE slowed the interviewing process, which may have provided respondents with more opportunity to think about the accuracy of their answers. These alternative explanations for the impact of TTDE posit that TTDE affects the dynamics of the interview process rather than (or in addition to) the respondents' perceptions of privacy. Regrettably, no data on perceptions of privacy or on the dynamics of the interview were collected. Future experiments will therefore be necessary to test the validity of these explanations. If TTDE is shown to impact the dynamics of the interview process, researchers may also want to examine whether the impact of TTDE is greater than the impact of improved interviewer training in conveying legitimacy, empathy, and the need for accurate answers.

Limitations

Use of TTDE is not without its difficulties. A sizeable proportion of respondents preferred to respond by voice instead, citing its speed and ease relative to TTDE. In particular, one respondent noted the difficulty posed by telephones with keypads on the handset. Of the respondents in the TTDE group, 68.8% were using telephones with this configuration, suggesting that others may have also found this process cumbersome. Furthermore, at least one in ten respondents asked if they were "doing it right," and, in total, 34 out-of-range values were entered by 17 respondents. (When this occurred, interviewers asked respondents to enter their answer again.) This raises the possibility that other incorrect values were entered by respondents, but were not recognized as such by the interviewers. Finally, TTDE does not work with rotary-

dial telephones; in this field test, only two respondents were using these phones and both had been pre-assigned to the voice-response group.

In addition to potential problems with TTDE, the results of this research are subject to other limitations. Due to the small sample size, some effects that may appear to be large in size (OR = 4.0; Rosenthal, 1996) did not reach the standard level of statistical significance ($p < .05$, two-tailed) and could be due to random error. The small sample for the survey and the low response rate may have also introduced biases that could not be evaluated using the available data. The field test sample was comparable demographically with the BRFSS sample in New Jersey, but both samples exclude persons without telephones, persons living in institutionalized settings, and persons who are linguistically isolated. By restricting the sample to adults 18-49 years of age in New Jersey, this research also may not be generalizable to other populations.

But perhaps the most critical limitation is the reliance on self-reported data with no external validation. Therefore, though this research assumed that increased reports of less prevalent socially proscribed behaviors meant increased response validity, we have no ability to confirm or refute this assumption. The best indicator available is the difference between men's and women's reports of the number of different sexual partners over the past 10 years. Except for possible gender differences in the number of homosexual partners, the gender-specific population averages for the number of sexual partners should presumably be similar (Tourangeau & Smith, 1996). TTDE narrowed the difference between these reports, suggesting that responses with TTDE were more valid than with voice response. But the gap between men's and women's reports was not closed, suggesting that TTDE may not result in completely accurate responses.

Given these limitations, we eagerly await replication of our findings by researchers with larger samples, increased response rates, and survey questions that lend themselves to either

greater external validation (e.g., administrative records) or concurrent validation (e.g., where partners' responses should agree; Card, 1978). Still, the results of this experiment suggest that TTDE results in enhanced self-disclosure for sensitive survey questions. In this way, TTDE has an effect similar to that of T-ACASI (Gribble, et al., 2000; Turner, Forsyth, et al., 1998). In contrast to T-ACASI, however, the presence of interviewers may improve data quality and reduce interview break-offs because they can respond to requests for clarification. And because Digit Grabber® dialed digit meters are relatively inexpensive (less than \$300) and can be attached to any touch-tone telephone, this method may also provide an economical alternative to T-ACASI.

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Table 1: Key Estimates from the SLAITS HIV Testing and STD Risk Behaviors Module — New Jersey, 2000

		Unweighted Proportion of Completed Interviews	Weighted Proportion of Population	Half-Width of 95% CI
Demographics				
Age	18-29	27.9	30.3	5.5
	30-49	72.1	69.7	5.5
Gender	Male	40.0	49.4	5.8
	Female	60.0	50.6	5.8
Race	White non-Hispanic	66.7	65.1	5.5
	Black non-Hispanic	15.4	14.2	3.9
	Other	17.9	20.8	4.8
Education	High school or less	32.6	36.7	5.7
	More than H.S.	67.4	63.3	5.7
Married?	Yes	53.2	54.7	5.8
	No	46.8	45.3	5.8
Employed last week?	Yes	76.0	75.7	5.1
	No	24.0	24.3	5.1
Income	\$49,999 or less	37.2	34.9	6.0
	\$50,000 or more	62.8	65.1	6.0
Health				
Self-reported health status	Excellent / very good / good	91.4	91.2	3.4
	Fair / poor	8.6	8.8	3.4
Health insurance?	Yes	90.9	89.5	3.8
	No	9.1	10.5	3.8
Any cost barrier to care in past year?	Yes	9.2	9.5	3.4
	No	90.8	90.5	3.4
Ever had HIV test? (not including blood donations)	Yes	50.0	48.5	5.8
	No	50.0	51.5	5.8
Perceived likelihood of getting HIV?	High / medium	5.1	5.1	2.4
	Low / none	94.9	94.9	2.4
Sexual Behavior¹				
Active in past year with at least one partner?	Yes	85.0	84.3	4.4
	No	15.0	15.7	4.4
Multiple partners in past year if sexually active?	Yes	12.4	13.7	5.0
	No	87.6	86.3	5.0

Note: CI, confidence interval.

¹Sex was defined for respondents as “oral, anal, or vaginal sex, but not masturbation.”

Table 2: Comparison of Estimates for Selected Sexual Behaviors by Response Mode, SLAITS HIV Testing and STD Risk Behaviors Module — New Jersey, 2000

Behavior	TTDE		Voice Response		Strength of Association	
	Percent	Sample Size	Percent	Sample Size	Odds Ratio	95% Confidence Interval
Have worried about contracting AIDS or STDs from a sexual partner during the past 12 months	12.0	203	2.6	183	5.15**	1.89 – 14.06
Abstained from sex ¹ during past 10 years	9.5	203	8.5	178	1.23	0.47 – 3.19
More than one partner in past 10 years if sexually active	50.1	183	48.4	159	1.13	0.68 – 1.87
Abstained from sex during past 12 months	17.5	203	13.9	178	1.33	0.67 – 2.66
More than one partner in past 12 months if sexually active	19.5	180	16.7	164	1.35	0.59 – 3.05
Sex with main partner in past 12 months if sexually active	96.6	170	97.2	154	0.87	0.25 – 2.96
Sex with non-main partner in past 12 months if sexually active	8.9	169	11.1	154	0.82	0.35 – 1.91
At least one of 5 HIV/STD risk factors was true in past 12 months ²	6.4	203	6.2	180	1.24	0.39 – 3.94
If sexually active, at least one of 5 HIV/STD risk factors was true in past 12 months ³	11.8	168	3.4	152	3.89*	1.31 – 11.57
Never used condom	14.1	39	13.6	25	1.27	0.22 – 7.19
Condom was used during last sex with main partner	23.3	33	4.8	19	4.40†	0.83 – 23.49
Had oral sex during last sex with main partner	86.0	33	56.5	19	4.07†	0.83 – 19.89

Note: For the logistic regression analyses, the voice-response group was the referent and was compared with the touch-tone data entry group. Respondent's education was used as a covariate.

* $p < .05$; ** $p < .01$; † $p < .10$; TTDE, touch-tone data entry.

¹Sex was defined for respondents as “oral, anal, or vaginal sex, but not masturbation.”

²Risk factors were: a) you have hemophilia, b) you have tested positive for having HIV, c) you took street drugs using a needle, d) you have been treated for a sexually transmitted disease, e) you had anal sex without a condom.

³Risk factors were: a) you have been diagnosed with hepatitis B or C, b) you had sex with someone who was also having sex with other people, c) you had sex with someone who tested positive for HIV or any other sexually transmitted disease, d) you had sex with a man who has sex with men, e) you traded sex for money or drugs.

Appendix

1. At any time during the past 12 months, have you worried about contracting AIDS or STDs from a sexual partner?
2. During the past 10 years, have you had sex? By sex, I mean oral, vaginal, or anal sex, but NOT masturbation.
3. During the past 10 years, with how many people have you had sex?
4. During the past 12 months, have you had sex?
5. During the past 12 months, with how many people have you had sex?
6. For this survey, we are going to use the term “main sexual partner” to describe someone who is your spouse, lover, or anyone else you feel committed to or have a special relationship with. During the past 12 months, have you had sex with a main sexual partner?
7. During the past 12 months, have you had sex with someone who was not your main sexual partner?
8. I’m going to read a list of 5 statements. When I am done, I will ask if any of these statements are true for you. Do not tell me which statements are true for you. Just if any of them are.
 - a) you have hemophilia.
 - b) you have tested positive for having HIV.
 - c) In the past year, you took street drugs using a needle.
 - d) In the past year, you have been treated for a sexually transmitted disease.
 - e) In the past year, you had anal sex without a condom.
9. Again, I’m going to read a list of 5 statements. When I am done, I will ask if any of these statements are true for you. As before, do not tell me which statements are true you. Just if

any of them are.

- a) you have been diagnosed with hepatitis B or hepatitis C.
 - b) In the past year, you had sex with someone who was also having sex with other people
 - c) In the past year, you had sex with someone who tested positive for HIV or any other sexually transmitted disease.
 - d) In the past year, you had sex with a man who has sex with men.
 - e) In the past year, you traded sex for money or drugs.
10. Have you or your partners ever used a condom during sex?
11. The last time you had sex with your main sexual partner, was a condom used?
12. The last time you had sex with this partner, did you have oral sex?
13. My next question is about the gender of your sexual partner or partners during the past 12 months. Have you had sex with only males, only females, or both males and females?

Additional questions concerning anal sex and most recent sex with a non-main partner were also included. However, small sample sizes prohibited analyses based on the responses to these questions.